

## Claim Listing

The following claims replace all pending claims in the application.

1-17 (canceled)

18. (previously presented) A method of multiplex analysis of analytes in a solution, comprising: providing a plurality of magnetically polarizable microparticles of two or more types wherein different types bear an optically distinguishable signature, and the different types display different capture moieties on their surfaces capable of binding to different analytes; suspending the microparticles in a first solution containing, or suspected to contain, analytes of interest, under conditions permitting the capture of analytes by the capture moieties, and wherein an optical signal is generated following such capture; using a magnetic field to assemble the microparticles in a planar array on a designated section of a substrate, where said magnetic field is generated by coils or magnets whose spatial position is fixed during said assembly, and wherein the spacing between particles within the array can be varied by varying the strength of the magnetic field without moving the coils or magnets; and imaging the optically distinguishable signatures associated with the microparticles and the optical signals, and correlating the optical signals with microparticles having particular optically distinguishable signatures to determine which analytes are bound by which capture moieties.
19. (previously presented) The method of claim 18 wherein the optical signals arise as a result of the binding of an analyte by a capture moiety.
20. (previously presented) The method of claim 19 wherein the optical signal indicates the transformation of the capture moiety mediated by the binding of the analyte.
21. (previously presented) The method of claim 18 wherein the first solution is removed and replaced with a second solution prior to imaging the optically distinguishable signatures associated with the microparticles and the optical signals.
22. (previously presented) The method of claim 18 wherein array assembly is initiated at a preselected time by actuating a magnetic field.